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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,407	01/10/2002	Ji-Guang Zhang	170239-00034	5262

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EXAMINER

ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/047,407

Applicant(s)

ZHANG, JI-GUANG

Examiner

Raymond Alejandro

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Appeal Brief

This communication is being provided in response to the appeal Brief dated 03/17/05. Prosecution on the merits of this application is reopened on claims 1-16 considered unpatentable for the reasons indicated below. Therefore, the instant claims are again rejected over the same art as seen below and for the reasons of record. In this instance, prosecution has been re-opened to address a different interpretation of the claimed language, and thus give applicants an opportunity to fairly respond to it.

Election/Restrictions and Claims Disposition

1. It is noted that claims 17-20 have been cancelled (*Refer to the Appeal Brief of 03/17/05 at Section IV. Status of the Claims*).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5, 7-11 and 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Xing et al 6284406.

Art Unit: 1745

The instant claims are directed to a method of sealing a battery cell wherein the disclosed inventive concept comprises the specific sealing steps. Other limitations include the particular laminate layers; the heat sealing; the sealing of the battery surface. In addition, the product formed thereby is also claimed.

With reference to claims 1, 4-5, 7, 10-11, 13 and 15:

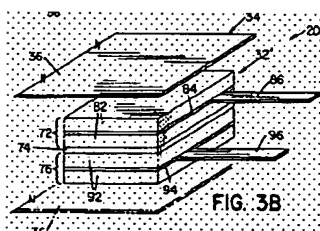
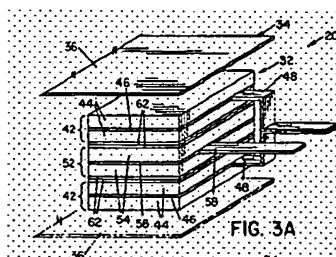
Xing et al disclose a battery embodiment wherein a battery 20 is contained within a package 34 formed of a flexible laminate material 36 (COL 3, lines 28-40). In reference to the outer package 34, it is disclosed that package 34 encases cell 32, 32' or 32'' is formed from a sheet of flexible laminate material 36. Broadly stated, the flexible laminate material is preferably multilayered and includes at least one layer of a metal foil and at least one layer of a thermoplastic (COL 4, lines 27-35). Xing et al further disclose that the metal foil layer is provided as a barrier to form a hermetic seal around cell 32. The thermoplastic adhesive and sealant is provided as an adhesive layer, which when heated, may bond onto itself or onto the metallic layer such that a hermetic seal is formed around cell 32 (COL 4, lines 35-40). It is further disclosed that heat and pressure are applied to the extending peripheral edges to cause the polymeric material and sealant material to soften and bond itself together to form a generally flange about the periphery of cell 32 (COL 4, lines 60-64).

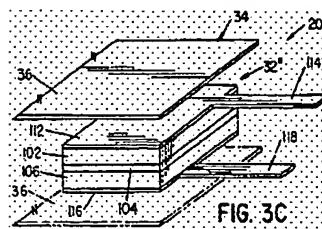
Xing et al disclose that in the embodiment shown, packaging 34 is formed by placing the flat electrolytic cell 32 onto one side of a sheet of the flexible laminate wherein the cell 32 is placed in contact with the adhesive and sealant layers of the laminate; wherein the other half of the flexible laminate sheet 36 is then folded over onto the battery 20; and since the polymeric adhesive and sealant layer is the inner layer of the flexible laminate (COL 4, lines 42-63);

Art Unit: 1745

wherein heat and pressure are applied to the thereto to cause the polymeric adhesive and sealant material to soften and bond itself together (COL 4, lines 60-64). *Thus, it is noted that Xing et al has disclosed that the battery cell 32 is placed in contact with the adhesive and sealant layer; being the adhesive and sealant layer the inner layer of the flexible laminate which is heated to cause the material therein to seal itself.*

Figures 3A-C below illustrate the steps for sealing the battery according to the aforementioned aspects, in particular, the use of a package 34 that encases cell 32, 32' or 32'' wherein the package 34 is formed from a sheet of flexible laminate material 36 which is a multilayered arrangement of a metal foil and a thermoplastic material (COL 4, lines 27-40). *It is noted that the layers are positioned over the top and bottom surfaces of the battery, that is the battery is placed between the top and bottom layers. Heat is applied to these layers and to the periphery of the cell for sealing the same. It is also noted that the top and bottom layers seals the majority of the battery top and bottom surfaces, respectively. It is further noted that the method of sealing the battery is inherent as the prior art's sealed battery required sealing steps for producing it as disclosed.*





****Examiner's note:** *As previously mentioned, prosecution of this application has been re-opened to address a different interpretation of the claimed language. In this particular respect, after a thorough review and examination of the specification as filed it has been determined that the specification does not particularly define the extent of the heat sealing step/technique, that is to say, it does not disclose what is specifically intended by the broad language "heat sealing" and its implication as to the sealing of the battery surfaces per se (i.e. partly?, entirely?, what specific parts?). Accordingly, absent further description or definition of what does the claimed "heat sealing" distinctively intends, the examiner states that the heat sealing step of Xing et al which includes having the cell enclosed in foil, and then applying heat to only the periphery portion of the foil overlaying itself to bond the foil about its periphery will certainly cause to have heat sealed the entire periphery (i.e. bottom surface, top surface and peripheral surface) of the battery of Xing et al. Stated another way, given that Xing et al's metal foil layer is provided as a barrier to form a hermetic seal around cell (**←emphasis added**) (See Xing et al at col 4, lines 33-35), such hermetic seal therearound encloses the entire periphery including the bottom surface, top surface and periphery surface of the electrochemical cell, and as a result, all those surfaces are also sealed. In this regard, it is further noted that applicant's specification does not provide sufficient description as to whether the heat sealing step itself is a "spot" heating sealing (that is, directly performed at the specific top surface and bottom surface) or a "**broad or common**" heating sealing step performed at any position, location, or*

Art Unit: 1745

*point, and consequently, making the first and second layers of the packaging foils be sealed to the top and bottom surfaces of the battery cell, respectively. In other words, in its broadest reasonable interpretation of the disclosed heat sealing technique, it can be fairly asserted that Xing et al's step encompassing applying heat and pressure to the three extending peripheral edges to cause the polymeric adhesive and sealing material to soften and bond itself together to form a generally U-shaped flange about the periphery of cell 32 (See Xing et al at col 4, lines 60-64) still reads on the broadly claimed language of heat sealing the top surface and the bottom surface of the battery with the respective packaging foils because the claimed "sealing" for itself only encompasses to enclose or cover the top and bottom surfaces regardless of whether or not the heat was directly applied to both the top and bottom surfaces. Put differently, the claimed heat sealing step does not specifically require to directly heat seal the top surface and the bottom surfaces, it only requires the step of performing heat sealing to have the packaging foil layers sealed to the top and bottom surfaces of the battery cell. ***

With reference to claims 2, 8 and 14:

Xing et al teach that the flexible laminate material is preferably multilayered and includes at least one layer of a metal foil and at least one layer of a thermoplastic (COL 4, lines 27-35).

With reference to claims 3 and 9:

Xing et al further teach that the metal foil layer is provided as a barrier to form a hermetic seal around cell 32. The thermoplastic adhesive and sealant is provided as an adhesive layer, which when heated, may bond onto itself or onto the metallic layer such that a hermetic seal is formed around cell 32 (COL 4, lines 35-40). It is further disclosed that heat and pressure are applied to the extending peripheral edges to cause the polymeric material and sealant material to

Art Unit: 1745

soften and bond itself together to form a generally flange about the periphery of cell 32 (COL 4, lines 60-64). *Thus, heat and pressure are employed for sealing the battery.*

Therefore, the applied prior art does anticipate the present claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6, 12 and 16 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Xing et al 6284406.

Xing et al disclose a battery embodiment wherein battery 20 which comprises an electrolytic cell 32 is contained within a package 34 formed of a flexible laminate material 36 (COL 3, lines 28-35). This package 34 encases cell 32, 32' or 32'' is formed from a sheet of flexible laminate material which is, preferably, multilayered (COL 4, lines 28-40). Heat and

Art Unit: 1745

pressure are applied to seal the battery (COL 4, line 35-40/ COL 4, line 60-64). It is noted that Xing et al disclose a substantially identical structural product, that is, a sealed battery comprising substantially the same structural features of the claimed invention.

Examiner's note: *It is noted that the instant claims are being construed as product-by-process claims and that the product itself does not depend on the process of making it. Accordingly, in a product-by-process claim, the patentability of a product does not depend on its method of production. In that, it is further noted that the product in the instant claims is the same as or obvious over the product of the prior art.*

Therefore, the claims are anticipated by Xing et al. However, if the claims are not anticipated the claims are obvious as it has been held similar products claimed in product-by-process limitations are obvious (See MPEP 2113). *In re Brown 173 USPQ 685 and In re Fessman 180 USPQ 324.*

Response to Arguments

7. Applicant's arguments filed 03/17/05 have been fully considered but they are still unpersuasive.

8. In response to the arguments presented by the applicant in the Appeal Brief of 03/17/05, as previously mentioned, prosecution of this application has been re-opened to address a different interpretation of the claimed language. In this particular respect, after a thorough review and examination of the specification as filed it has been determined that the specification does not particularly define the extent of the heat sealing step/technique, that is to say, it does not disclose what is specifically intended by the broad language "heat sealing" and its implication as

Art Unit: 1745

to the sealing of the battery surfaces per se (i.e. partly?, entirely?, what specific parts?).

Accordingly, absent further description or definition of what does the claimed “heat sealing” distinctively intends, the examiner states that the heat sealing step of Xing et al which includes having the cell enclosed in foil, and then applying heat to only the periphery portion of the foil overlaying itself to bond the foil about its periphery will certainly cause to have heat sealed the entire periphery (i.e. bottom surface, top surface and peripheral surface) of the battery of Xing et al. Stated another way, given that Xing et al’s metal foil layer is provided as a barrier to form a hermetic seal around cell (←**emphasis added**) (See Xing et al at col 4, lines 33-35), such hermetic seal therearound encloses the entire periphery including the bottom surface, top surface and periphery surface of the electrochemical cell, and as a result, all those surfaces are also sealed. In this regard, it is further noted that applicant’s specification does not provide sufficient description as to whether the heat sealing step itself is a spot” heating sealing (that is, directly performed at the specific top surface and bottom surface) or a “**broad or common**” heating sealing step performed at any position, location, or point, and consequently, making the first and second layers of the packaging foils be sealed to the top and bottom surfaces of the battery cell, respectively. In other words, in its broadest reasonable interpretation of the disclosed heat sealing technique, it can be fairly asserted that Xing et al’s step encompassing applying heat and pressure to the three extending peripheral edges to cause the polymeric adhesive and sealing material to soften and bond itself together to form a generally U-shaped flange about the periphery of cell 32 (See Xing et al at col 4, lines 60-64) still reads on the broadly claimed language of heat sealing the top surface and the bottom surface of the battery with the respective packaging foils because the claimed “sealing” for itself only encompasses to enclose or cover the

Art Unit: 1745

top and bottom surfaces regardless of whether or not the heat was directly applied to both the top and bottom surfaces. Put differently, the claimed heat sealing step does not specifically require to directly heat seal the top surface and the bottom surfaces, it only requires the step of performing heat sealing to have the packaging foil layers sealed to the top and bottom surfaces of the battery cell.

9. The main contention of applicant's arguments is premised on the assertion that the prior art does not disclose "that the foil is actually heat sealed to the battery" or "heat sealing the first layer of packaging foil to the top surface of the battery cell or heat sealing the second layer of packaging foil to the bottom surface of the battery cell". However, this assertion is respectfully disagreed with because the prior art teaches the following: in the embodiment shown, packaging 34 is formed by placing the flat electrolytic cell 32 onto one side of a sheet of the flexible laminate wherein the cell 32 is placed in contact with the adhesive and sealant layers of the laminate; wherein the other half of the flexible laminate sheet 36 is then folded over onto the battery 20; and the polymeric adhesive and sealant layer is the inner layer of the flexible laminate (COL 4, lines 42-63) wherein heat and pressure are applied to the thereto to cause the polymeric adhesive and sealant material to soften and bond itself together (COL 4, lines 60-64). *Thus, it is contended that the prior art has disclosed that the battery cell 32 is placed in contact with the adhesive and sealant layer being the adhesive and sealant layer the inner layer of the flexible laminate which is heated to cause the material therein to seal itself. Accordingly, even though the prior art does not explicitly disclose the particular sealing step as specifically drafted in claim 1, it is contended that the sealing approach used by the prior art implicitly instructs the skilled artisan that the cell is, indeed, in direct contact with the adhesive and sealant layer of the*

Art Unit: 1745

laminate which are the inner layer of the flexible laminate which are heated to cause the adhesive and sealant material to soften and bond itself together, thereby the surface of the battery contacted with the adhesive and sealant layer of the laminate is also exposed to the heat, and therefore, said surface of the battery must become heat sealed. Consequently, given that the prior art of record has expressly disclosed that the battery is positioned in contact with the adhesive and sealant layer of the laminate which is heated sealed, the battery per se is, therefore, necessarily and directly heat sealed to the laminate structure. Unless applicant provides objective evidence demonstrating that the battery of the prior art does not contact at all any portion of the adhesive and sealant layer of the laminate subject to heat sealing, it is believed the prior art imparts a satisfactory heat sealing step fulfilling the claimed requirement.

10. Applicant has also argued that “heat is applied to only the peripheral portion of the foil overlaying itself to bond the foil about its periphery, see specification Col. 4, lines 54 through Col. 5, line 3” (see the amendment of 04/29/04, “Remark” section last sentence bridging pages 2-3), nonetheless nowhere throughout Col 4, line 54-Col 5, line 3 of the applied reference the examiner can find the specific conditional language reciting “only” and stating that heat is applied to only the peripheral portion thereof. Thus, this argument is considered to be unsupported as the reference itself does not appear to be leading into that teaching.

11. In response to applicant's argument that “*the heat sealing process would destroy a typical battery cell*”, the fact that applicant has recognized another advantage/disadvantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

12. In response to applicant's arguments against using a reference specifically identified and described by applicant in its Background of the Invention, the fact that applicant has cited the reference in his/her/their specification does not necessarily disqualify the reference as a prior art and/or preclude the examiner from applying it. The examiner is not aware of any section in the M.P.E.P. guideline, patent law or intellectual property procedural rules stating so. However, if applicant happens to be aware of any kind of restriction preventing the use of references identified and described in patent applications, he/she/they is(are) respectfully invited to share such information, indication or statement with the examiner.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


RAYMOND ALEJANDRO
PRIMARY EXAMINER

Application/Control Number: 10/047,407
Art Unit: 1745

Page 13

Raymond Alejandro
Primary Examiner
Art Unit 1745



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